Coding Test Set 2

Problem 1:
Write a program to convert a binary number to octal number.
Input:
101
Output:
5
Input:
11010
Output:
32
Test Case:
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1. Valid Input:
a) Only number consisting of 0s and 1s will be given as input
2. Invalid inputs:
a) Decimal
b) Fraction
c) String
d) Two or more command line arguments
e) Negative number
3. You should generate output as follows:
a) For right output print just the actual Octal Value to STDOUT without any other text.
b) If any error: print 'ERROR' to the STDOUT without any other text.

Problem 2:
Write a program to check whether a number is perfect or not.

Program 3:
Given an array of integers, sort the first half of the array in ascending order and second half in descending order.
Take input from STDIN by scanf().
Examples:
Input: arr[] = {5, 2, 4, 7, 9, 3, 1, 6, 8}
Output: arr[] = {1, 2, 3, 4, 9, 8, 7, 6, 5}
Input: arr[] = {1, 2, 3, 4, 5, 6}
Output: arr[] = {1, 2, 3, 6, 5, 4}

Problem 4:
Write a program to check whether a number is prime or not.

Program 5:
A prime number is a whole number greater than 1, whose only two whole-number factors are 1 and itself. The first few prime numbers are 2, 3, 5, 7, 11 and 13.
Given two integers, print the sum of all prime numbers between n1 and n2 (both inclusive).
Input:
The first line of the input contains an integer t, number of test cases next t lines follow with each line containing two integers n1 and n2
Output:
For each test case print the answer in a new line.
Example
Input:
2

1 6
6 6
Output:
10
0
Test Cases:
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1. Valid Input:
a) Only integer will be given as input.
Constraints:
1 < t <= 10
0 < n1 <= n2 <= 100
2. Invalid inputs:
a) Negative number (t, n1, or n2)
b) Fraction
c) String
3. You should generate output as follows:
a) For right output print just the sum to STDOUT without any other text.
b) If any error: print 'ERROR' to the STDOUT without any other text.

Program 6:
Write a program to check whether a number is palindrome or not.

Program 7:
Remove duplicates character from a given string.
Input String:
engineering
Output String:
engir
Test Cases:
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1. Valid Input:
a) Only string of character will be given as input.
2. Invalid inputs:
a) No command line arguments
b) Two or more command line arguments
c) Integer
d) Fraction
3. You should generate output as follows:
a) For right output print just the string to STDOUT without any other text.
b) If any error: print 'ERROR' to the STDOUT without any other text.

Program 8
Write a program to find the sum of first n prime numbers.

Program 9
Write a Program to find sum of series 1 + 1/2 + 1/3 + 1/4 +... + 1/n. The value n is positive integer passed to the program as the first command line parameter. Write the output to stdout formatted as a floating point number rounded to EXACTLY 2 decimal precision WITHOUT any other additional text. Scientific format (such as 1.00E+5) should NOT be used while printing the output. You may assume that the inputs will be such that the output will not exceed the largest possible real number that can be stored in a float type variable.
Example:

Input:
1
Output:
1
Input:
2
Output:
1.5
Test Cases:
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1. VALID INPUTS:
a) Only positive integer will be given as input through command line argument.
2. INVALID INPUTS:
a) No command line argument.
b) More than 1 command line arguments
c) String
d) Fraction
e) Negative number as input argument
3. OUTPUT:
a) Write the output to stdout formatted as a floating point number rounded to EXACTLY 2 decimal precision WITHOUT any other additional text.
For example
[./a.out 2] => 1.5
b) In case of invalid input print 'ERROR' to the STDOUT without any other additional text and terminate.

Program 10
Write a program to find GCD and LCM of two numbers.

Program 11
The problem is quite simple. You're given a number N and a positive integer K. Tell if N can be represented as a sum of K prime numbers (not necessarily distinct).
Input Format:
The first line contains a single integer T, denoting the number of test cases.
Each of the next T lines contains two positive integers, N & K, separated by a single space.
Output Format:
For every test case, output "Yes" or "No".
Input:
2
10 2
1 6
Output:
Yes
No
Test Cases:
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1. VALID INPUTS:
a) Only integer will be given as input from STDIN.
Constraints
1 <= T <= 5000
1 <= N <= 1000
1 <= K <= 1000
2. INVALID INPUTS:

a) String.
b) Fraction.
c) Negative number.
3. OUTPUT:
a) Write the output to STDOUT without any other additional text.
b) In case of invalid input print 'ERROR' to the STDOUT without any other additional text and terminate.

Program 12
Write a program to display prime numbers between two intervals.

Program 13
Given an array of integers, task is to print the array in the order – smallest number, Largest number, 2nd smallest number, 2nd largest number, 3rd smallest number, 3rd largest number and so on…..
Examples:
Input:
arr[] = [5, 8, 1, 4, 2, 9, 3, 7, 6]
Output:
arr[] = {1, 9, 2, 8, 3, 7, 4, 6, 5}
Input:
arr[] = [1, 2, 3, 4]
Output:
arr[] = {1, 4, 2, 3}
Test Cases:
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1. VALID INPUTS:
a) Only integer will be given as input through STDIN.
2. INVALID INPUTS:
a) String s
3. OUTPUT:
a) Write the output to STDOUT without any other additional text.
b) In case of invalid input print 'ERROR' to the STDOUT without any other additional text and terminate.

Program 14
Write a program to check Armstrong number.

Program 15
Consider the below series:
1, 2, 1, 3, 2, 5, 3, 7, 5, 11, 8, 13, 13, 17, …
This series is a mixture of 2 series – all the odd terms in the series form a Fibonacci series and all the even terms are the prime numbers in ascending order.
Write a program to find the Nth term in the series.
The value N in a positive integer that should be read from STDIN. The Nth term that is calculated by the program should be written to STDOUT. Other than the value of Nth term, no other characters/string or message should be written to STDOUT.
For example when N=14, the 14th term in the series is 17.
Test Cases:
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1. VALID INPUTS:
a) Only integer will be given as input through STDIN.
2. INVALID INPUTS:
a) String.
b) Fraction.

c) Negative number as input argument.
3. OUTPUT:
a) Write the output to STDOUT without any other additional text.
b) In case of invalid input print 'ERROR' to the STDOUT without any other additional text and terminate.

Program 16
Write a program to display factors of a number.

Program 17
C program to reverse a String Using Recursion
Input String:
margorp emosewa
Output String:
awesome program
Test Cases:
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1. VALID INPUTS:
a) Only String will be given as input through STDIN.
2. INVALID INPUTS:
a) Characters other than alphabet.
3. OUTPUT:
a) Write the output to STDOUT without any other additional text.
b) In case of invalid input print 'ERROR' to the STDOUT without any other additional text and terminate.

Program 18
Write a program to check whether a number can be expressed as sum of two prime numbers.

Program 19
C Program to Remove all Characters in a String except Alphabet and store the resultant string within the same string. Change all lower case letters to upper case and then check whether the string is palindrome is not without using library function.
Input String:
In.form,atio1n Tec?hnol-og=y
Output String:
Information Technology
INFORMATION TECHNOLOGY
NO
Test Cases:
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1. VALID INPUTS:
a) Only String will be given as input through command line argument.
2. INVALID INPUTS:
a) No command line argument.
b) More than 1 command line arguments.
3. OUTPUT:
a) Write the output to STDOUT without any other additional text.
b) In case of invalid input print 'ERROR' to the STDOUT without any other additional text and terminate.

Program 20
Write a program to find G.C.D using recursion.